HMI Series Panel PC

Intel Atom Z Series 3.5" SBC, Low Power, High Performance Design with Intel Atom Z Series Platform, TFT LCD and 10/100/1000 base-T Ethernet.

User Guide Version 1.0

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FCC Statement

This device complies with part 15 FCC rules. Operation is subject to the following two conditions：

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "a" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

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Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s), conveys no license or title under any patent, copyright, or masks work rights to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or warranty that such application will be suitable for the specified use without further testing or modification.

Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, We will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in it's original packaging to obtain warranty service.

If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W07Axxxxxxxx means October of year 2007.

Check List

Before using this BOX PC, please make sure that all the items listed below are present in your package

- 1 x HMI Series PPC unit
- 1 x Driver Utility CD
- 1 x HMI User Guide
- 1 x I931 User Manual

Make sure that all of the items listed above are present. Do not attempt to apply power to the system if there is damage to any of its components.

Customer Service

We provide service guide for any problem as follow steps：First, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance. You may have the following information ready before you call：

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

Safety Precautions

- **Warning!**

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

- **Caution!**

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Safety and Warranty

1. Please read these safety instructions carefully.
2. Please keep this user's manual for later reference.
3. Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
12. Never pour any liquid into an opening. This could cause fire or electrical shock.
13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
14. If any of the following situations arises, get the equipment checked by service personnel:
    A. The power cord or plug is damaged.
    B. Liquid has penetrated into the equipment.
    C. The equipment has been exposed to moisture.
    D. The equipment does not work well, or you cannot get it to work according to the user's manual.
    E. The equipment has been dropped and damaged.
    F. The equipment has obvious signs of breakage.
15. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20° C (-4°F) or above 60° C (140° F). It may damage the equipment.

Revision History

Version	Date	Note	Author
0.8	2010/9/8	✓ First Version	Cage Hsu
1.0	2010/9/21	✓ Revise Brightness Control	Cage Hsu

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Chapter 1 GENERAL INFORMATION

1-1 Introduction

The Z5xx series Panel PC is high performance, low power PC with Intel® US15W XL Chipset combine with a TFT LCD Panel. The Intel Core Duo high performance Processor delivers the most performance per watt available in the market. The Panel PC is designed to satisfy most of the applications in the industrial market, such as POS, KIOSK, Industrial Automation, HMI and Programmable Control System. It's a PC-based system with DDR2 SDRAM, VGA/LCD controller, one COM ports, and on-board 10/100/1000 Mpbs Base-T Ethernet. The Panel PC supports one Mini-PCIe expansion slot, COM port, VGA solutions. It is a compact design to meet the demanding performance requirements of today's business and industrial applications.

1-2 I931 SBC and Atom Z5xx series Panel PC System Specifications

CPU Type	Intel Atom Z series Processor
CPU Speed	1.1GHz/1.6GHz
CPU FSB	533MHz
Chipset	Intel US15W
BIOS	AMI 4M Flash
VGA	Intel® GMA500 Integrated Graphics Engine
LVDS	Intel® GMA500 Integrated Graphics Engine built-in, 24 bits single-channel panel support up to UXGA panel resolution.
LAN	2 x Giga LAN (Realtek RTL8111B + Realtek RTL8111B Giga LAN Controller)
Memory Type	1 x SO-DIMM socket, supports up to 2GB SO-DIMM 400/533 SDRAM
LPC I/O	Winbond W83627EHG integrated hardware monitoring
IDE Interface	One channels; supports Ultra DMA 33/66/100
Sound	Realtek ALC888-GR (Line-out, Line-in & Mic in)
USB	6 ports, USB 2.0 (2 x USB Connector, 4 x USB pin-header)
Edge Connectors	1 x DC-IN Jack 1 x VGA out connector 2 x Gigabit LAN RJ-45 1 x Dual USB stack connector 1 x RS232 Com Port
On Board Pin-Header Connectors	1 x 44 pins IDE box-header 1 x 10pins pin-header for Front Panel(2x5) 1 x 2pins pin-header for 5V/12V external power 1 x 12pins pin-header for Front Audio(2x6) 1 x 8pins pin-header for USB 3/4, 5/6(2X4) 1 x 10pins Digital I/O(2x5) 2 x 10pins pin-header for COM 3, 4 (RS232) (2X5) 1 x 5pins pin-header for COM3 (RS422/485) 1 x 4pins ATX 12V connector 1 x 20pins DF13-20DP Connector for LVDS 1 x 3pins digital panel backlight brightness controller 1 x 7pins digital panel inverter
Power Connector	Input: 4-pin ATX 12V Power input
Expansion Slots	2 x Mini-PCIe, (1 for IDE SSD)
Form Factor	3.5 inch
Dimensions	146mm x 101mm
Mechanical & environmental	Operating temperature: 0 deg. C to 60 deg. C Operating Humidity: 10 ~ 90% Relative humidity, non-condensing Shock: Operating 15G, 11ms duration Vibration: Operating 5 Hz~500Hz / 1Grms / 3 Axis Certification: CE, FCC, RoHS

1-3 **LCD Selection Guide**

The HMI series Panel PCs support form 5.7-inch, 7-inch, 10.1-iinch TFT Panel w/ touchscreen function, please refer the below:

Size	Model Name	Resolution	Display Color
5.7”	R05I93S-IPD1HM	640 x 480	262k
7”	W05I93S-IPA2HM	800 x 480	262k
10.1”	W10I93S-IP11HM	1024 x 600	256k

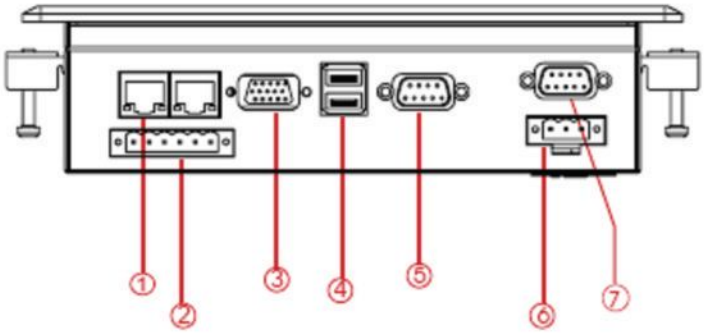
1-4 **HMI Series Brief**

Size	Model Name	IO	Dimension
5.7”	R05I93S-IPD1HM	1 x Terminal Block(Phoenix Type) 1 x RS232 1 x RS232/422/485(Optional) 2 x USB 2.0 1 x VGA 1 x 2ch CAN BUS(Optional)	LxHxD=188x148x59mm
7”	W05I93S-IPA2HM	1 x Terminal Block(Phoenix Type) 1 x RS232 1 x RS232/422/485(Optional) 2 x USB 2.0 1 x VGA 1 x 2ch CAN BUS(Optional)	LxHxD=218x164.6x60.8mm
10.1”	W10I93S-IP11HM	1 x Terminal Block(Phoenix Type) 1 x RS232 1 x RS232/422/485(Optional) 2 x USB 2.0 1 x VGA 1 x 2ch CAN BUS(Optional)	LxHxD=286x182x60mm

Chapter 2 Getting Started

2-1 Input / Output Devices

The following figure shows the I/O arrangement of the Panel PC. The backside of the chassis contains most of the connectors (7" for example).

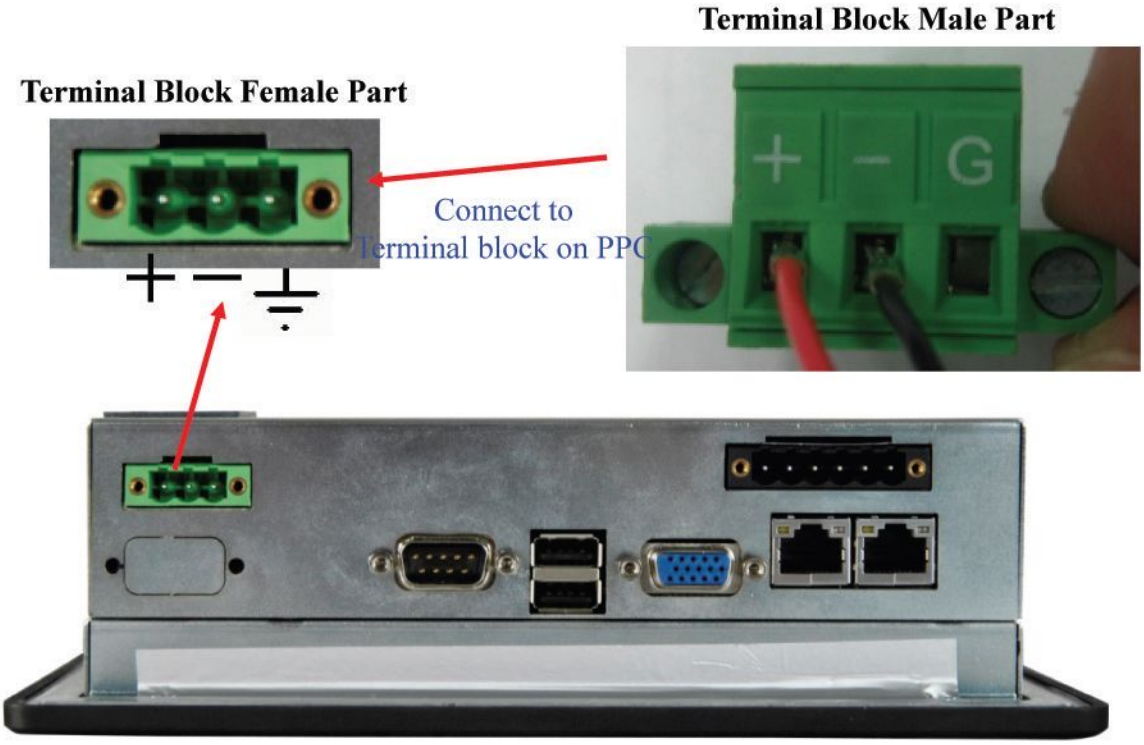


1. RJ-45
2. CAN BUS
3. VGA Out
4. USB
5. RS-232
6. 12V DC-IN Terminal Block (Phenix Type)
7. RS-232/422 / 485)

1	RJ-45	2 x RJ45-10/100/1000
2	VGA	1 x VGA (D Sub 15p Female)
3	CAN BUS (Optional)	1 x 2channel CAN BUS (ch1, ch2)
4	USB	2 x USB 2.0
5	RS-232	1 x RS232 D Sub 9p
6	DC-in	1 x 12V DC-in with Terminal Block Phoenix Type(G - +)
7	RS-232/422/485	1 x RS-232/422/485 D Sub 9p (Default: RS-232)

2-2 Starting the Panel PC& O/S Installation

1. Connect the power to 12V DC power supply to 3 pins Terminal block (Phoenix Type)



2. Press the power on switch to start the Panel PC.
3. Press "DEL" to enter the CMOS setting and check the BIOS setup.
4. You may install your own O/S if it is not installed. When installing O/S for this Panel PC, please follow the steps and use external equipment as **Keyboard and USB DVD-ROM**
   (a) Please use external USB DVD-ROM to run the O/S and Driver setting (as picture showed below).

2-3 **Driver Installation**

The PPC comes with a I931 User's Manual and Driver CD that contains most of the drivers and utilities of your needs.

a) Following the step by step to install Driver (Please refer I931 SBC User's Manual Chapter 3, 4, 5, 6) include: Chipset, VGA, Audio, and Ethernet

b) Following the step by step to install the Touch screen if necessary (Please refer S series PPC User Guide Chapter 3).

Chapter 3 Driver Installation

3-1 **Touch Driver Installation**

HMI series default is Premier Touch. The touchscreen system consists of a touchscreen and an electronic touchscreen controller. The attached Driver CD contains drivers of the touch panel controller.

Follow the steps as below to install TouchKit:

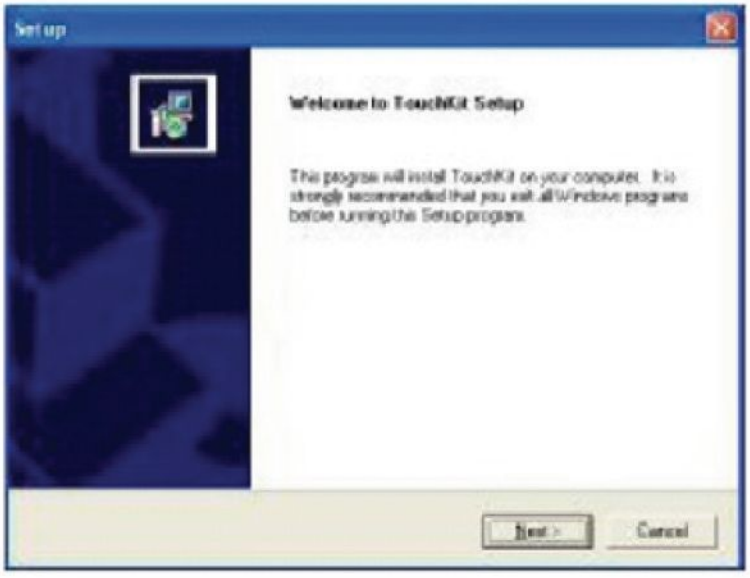
Step1 Put the TouchKit CD to CD-ROM

Step2 Open the Win2000_XP directory.

Step3 Double click the Setup.exe, then system starts to run the installation program.

Notice: Do not plug the USB controller on the system before the installation has been finished.

Step.4 Click Next to continue installation. And it will auto-detect touch devices in COM2 port at your Panel PC



Step.5 Following the step by step to finish the driver installation

3-1-1 **Configuration Utility**

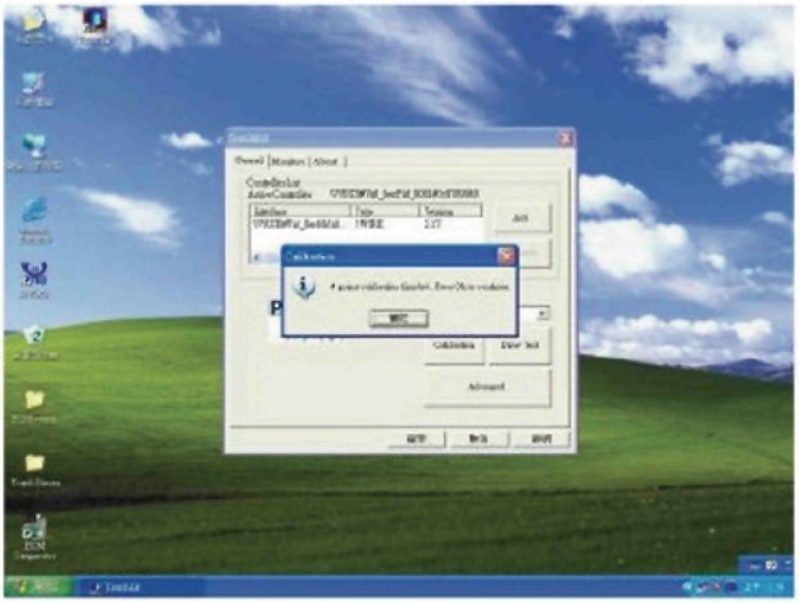
After finishing the installation, please follow the steps to test the configuration utility.

Step.1 Click the “TouchKit” shortcut function in the desktop.

Step.2 Enter “General” function and choose the language you need.

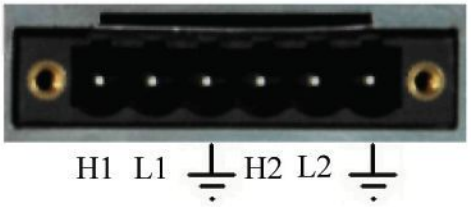
Step.3 Correct 4 point locations on screen with the Panel. Screen display as follows

Step.4 Play “Yes” to continue if 4 points calibration test is fine and finish the test

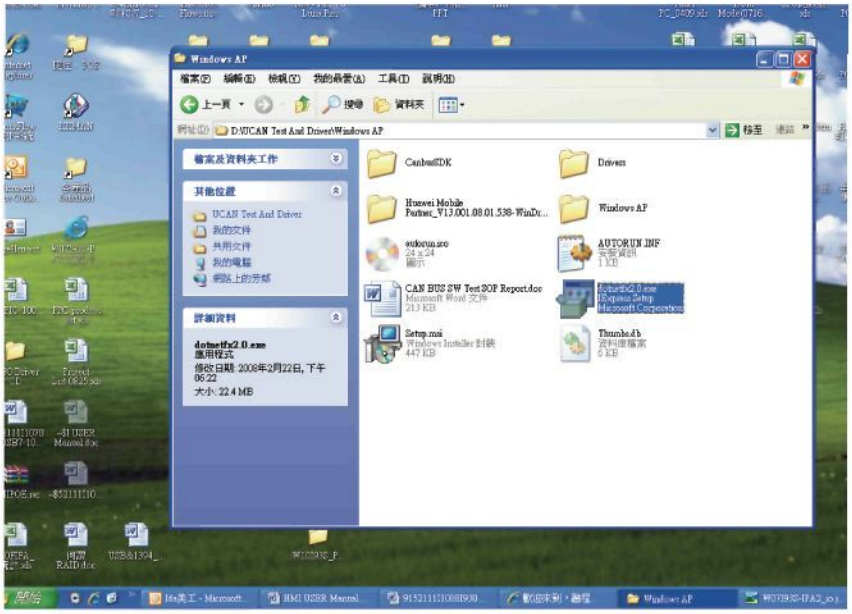


3-2 CAN BUS Driver Installation

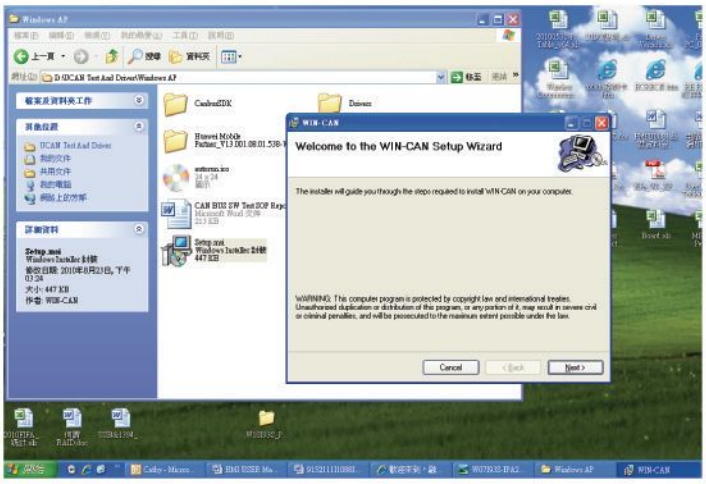
HMI Series support 2 channels CAN BUS.



Step1. Enter CAN BUS floder. Install “dotnetfx2.0.exe” first.



Step2. Enter CAN BUS Folder. Install “setup.msi”. Then finish the installation.

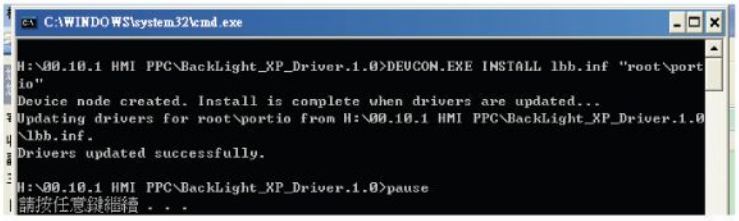


3-3 Brightness Adjustment

In our new product – 10.1” Panel PC, the dimming control has to install drivers and software to work brightness control properly. Please do following steps:

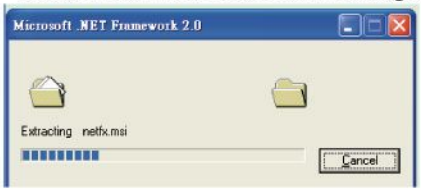
Step1 Installing Driver

You can find the driver in the Touch & Driver CD. Find the 「Backlight Control Driver」 folder and double click the “install.bat” install file.


C:\WINDOWS\system32\cmd.exe
H:\00.10.1 HMI PPC\BackLight_XP_Driver.1.0>DEVCON.EXE INSTALL lbb.inf "root\portio"
Device node created. Install is complete when drivers are updated...
Updating drivers for root\portio from H:\00.10.1 HMI PPC\BackLight_XP_Driver.1.0\lbb.inf.
Drivers updated successfully.
H:\00.10.1 HMI PPC\BackLight_XP_Driver.1.0>pause
請按任意鍵繼續 . . .

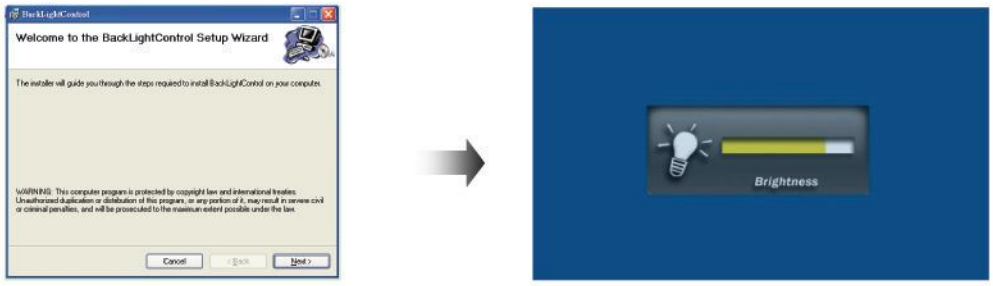
Step2 Installing .NET Framework 2.0

To install .net Framework, you have to click the .net Framework installation file dotnetfx.exe in 「Framework 2.0」 folder for working normally.



Step3 Installing Backlight Control Software

To install Back Light Control Software: Click the setup file setup.msi in 「Backlight Control Software」Folder and Confirm Installation, then dimming control enabled by buttons by button at the front bezel.



Chapter 4 HMI series Panel PC Mounting Guide

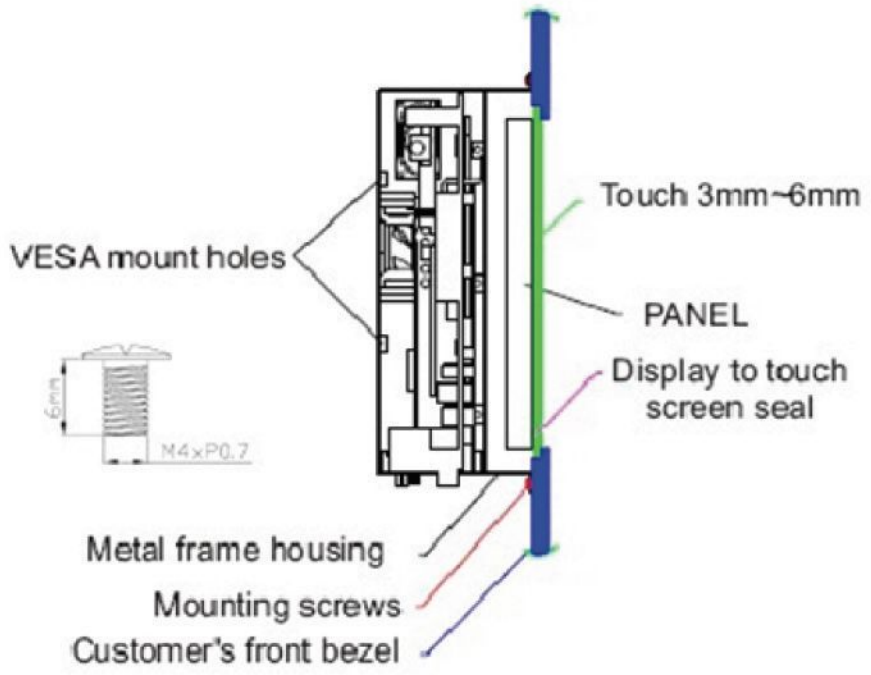
The Panel PC is suitable for most of the industrial/commercial application, by any kind of mounting approach. Three main mounting approaches, such as VESA Mount/ Panel Mount /IP65 Mount, are very easy for user to install the Panel PC. As the pictures guided:

4-1 **VESA Mount :**

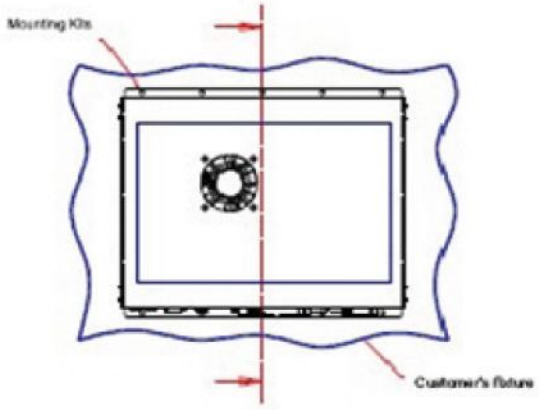
-Panel is aligned with the same height of the front of open frame metal housing

-Customers can fix our Panel PC with their own front bezel.

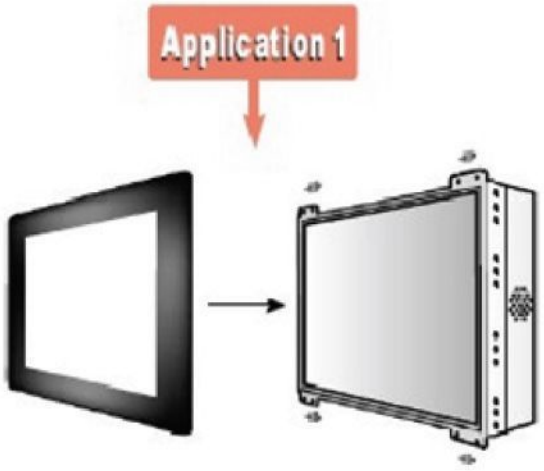
-VESA mount holes are also available for mounting from back side.



SIDE VIEW

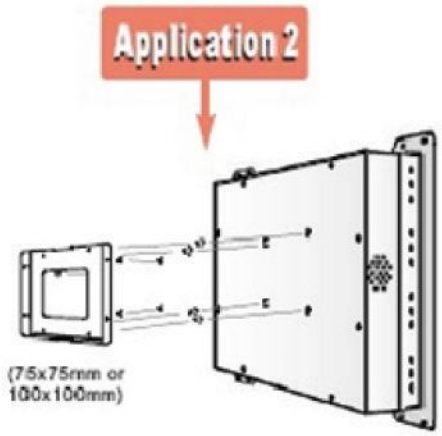


REAR VIEW



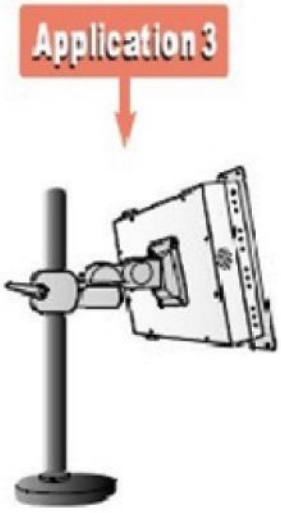
PANEL MOUNT

-mount with front bezel and then mounted into customer's panel.



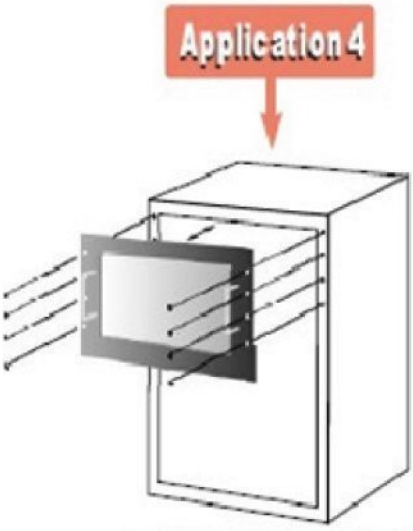
WALL MOUNTING

-mount with VESA mount kits and then mounted into wall.



ARM MOUNTING

-mount with VESA mount kit and then mounted with swimming arms.



RACK MOUNTING

-mount with rack front bezel and then mounted into racks.

Panel PC Size	VESA Mount Dimension
5.7”	75 x 75 mm
7”	75 x 75 mm
10.1”	75 x 75 mm

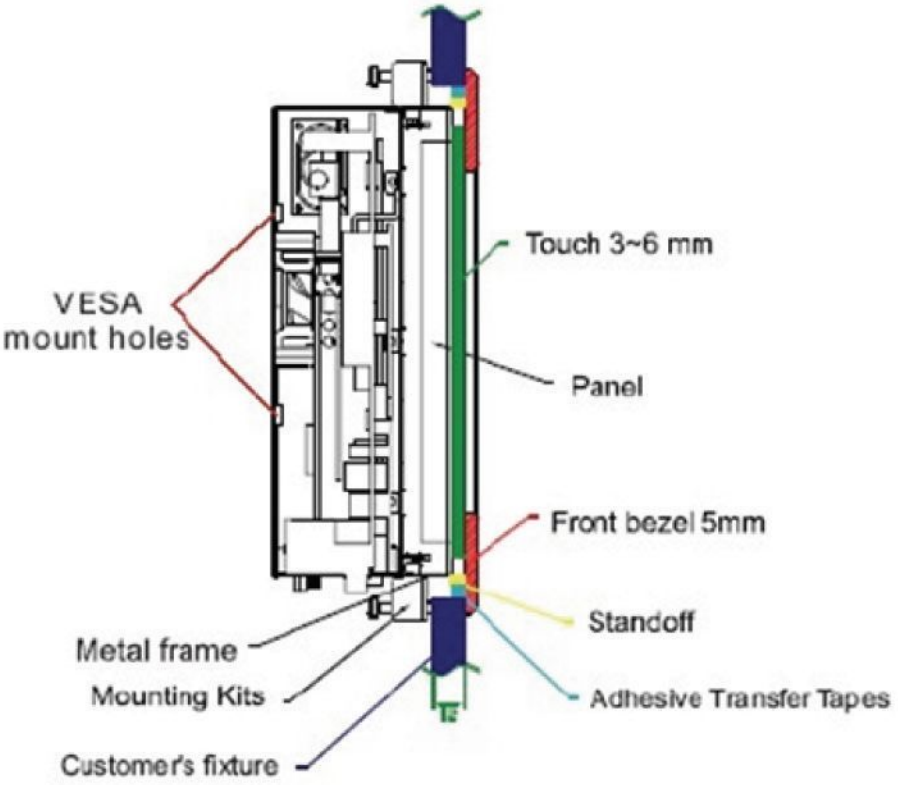
4-2 **Panel Mount (Clip Design):**

-Panel is aligned with the same height of the front of open frame metal housing.

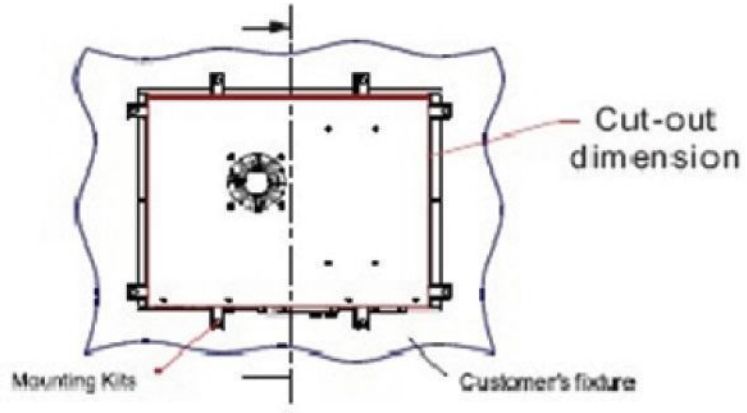
-Touch/Glass is higher than Open frame metal housing.

-Customers can fix our Panel PC with their fixture (max.12mm)

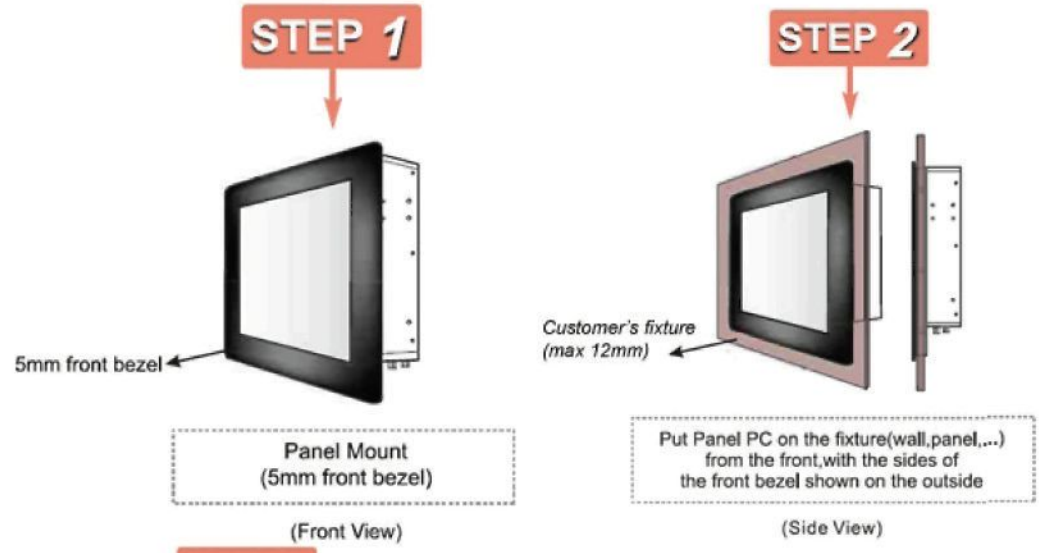
-VESA mount holes are also available for mounting from back side.

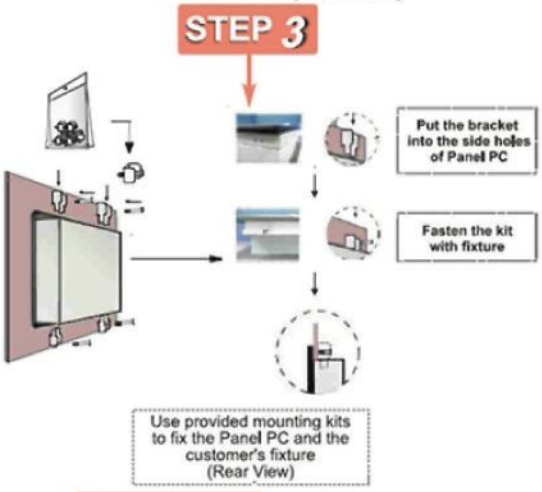


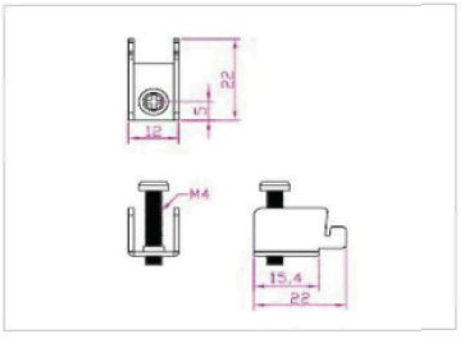
SIDE VIEW



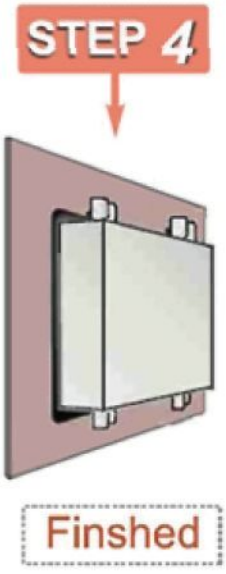
REAR VIEW







The Dimension of mounting kits



Panel mount (6mm Font Bezel)	
Panel PC Size	Mounting kit (pcs)
5.7”	4
7”	4
10.1”	8

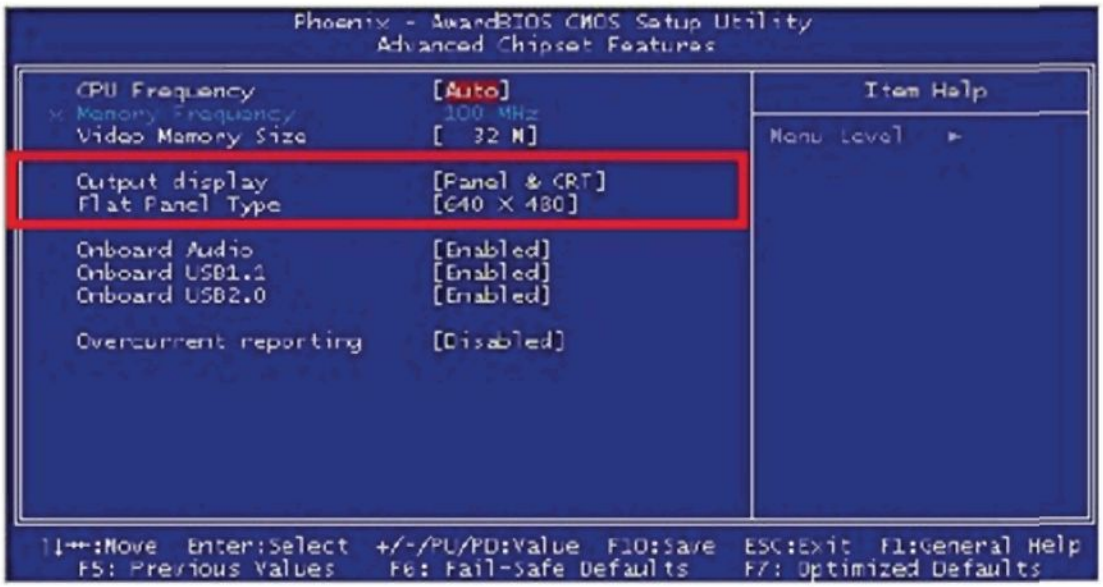
KNOWN ISSUES

1. There might be some image noises displayed at the time of PC boot and Windows start up.
2. When using an “external display” as CRT or LCD for external mode (Panel & CRT), the resolution of external display may be recommended equal to the CMOS setting for panel [Flat Panel Type]. Lower resolution than CMOS setting in Windows may cause indistinct display.

Recommendation in CMOS setting：

I. Choose “CRT” only when use external display.

II. Choose “Panel” only when use internal panel display.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
CPU Frequency [Auto]
Memory Frequency 100 MHz
Video Memory Size [32 M]
Output display [Panel & CRT]
Flat Panel Type [640 X 480]
Onboard Audio [Enabled]
Onboard USB1.1 [Enabled]
Onboard USB2.0 [Enabled]
Overcurrent reporting [Disabled]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

NOTICES

1. The Operation Systems we currently support are Windows XP and XP Embedded. When installing driver, please make sure you're using Windows XP Service Package2 (SP2) above.
2. The VGA output port for I931 is only for displaying the same images as built-in display. The extended mode is not available for I931.
3. When you use CF card as storage of Operation System, you need to use "**Fixed Disk Mode**" type Compact Flash Card instead of removable disk mode.
4. The external Compact Flash socket is **NOT A PLUG & PLAY DEVICE**, you may **remove the CF card only on at POWER-OFF status.**